

WHAT IS CLAIMED IS:

1. A thin film magnetic head with a write element, wherein:

the write element comprises a first yoke portion, a second yoke portion, a first pole portion, a second pole portion, a gap film, a back gap portion and a coil;

the first yoke portion is connected to the second yoke portion by the back gap portion in the opposite side in relation to the medium-facing surface side;

the first pole portion and the second pole portion are disposed in the medium-facing surface side of the first yoke portion and the second yoke portion respectively;

the first pole portion includes a trimmed portion in such a position that the trimmed portion faces the second pole portion in the medium-facing surface side, and the trimmed portion has a reduced width to fit the second pole portion;

the second pole portion has a reduced width in the medium-facing surface side;

the gap film is disposed between the first pole portion and the second pole portion;

the coil surrounds in a spiral form the back gap portion; and

the first pole portion includes an extending portion that extends so as to cover one surface of the coil facing the second pole portion.

2. The thin film magnetic head of claim 1, wherein:

the first pole portion comprises a first pole piece, a second pole piece and a third pole piece;

the first pole piece is formed of an end of a first magnetic film supporting the coil;

5 the second pole piece has one surface adjacent to the first pole piece;

the third pole piece has one surface adjacent to the other surface of the second pole piece;

10 the second pole piece is disposed on the medium-facing surface side of the coil;

the third pole piece includes an extending portion that extends so as to cover said other surface of the second pole piece and said one surface of the coil facing the second pole portion.

15 3. The thin film magnetic head of claim 2, wherein:

the first pole portion further comprises a fourth pole piece having one surface adjacent to the other surface of the third pole piece; and

20 extending portions that extend so as to cover one surface of the coil facing the second pole portion are at all levels in the height of the third pole piece and at some levels in the height of the fourth pole piece.

4. The thin film magnetic head of claim 2, wherein:

the first pole portion further comprises a fourth pole piece having one surface adjacent to the other surface of the third pole piece; and

the extending portion that extends so as to cover one surface of the coil facing the second pole portion is at all levels in the height of the third pole piece.

5            5.        The thin film magnetic head of claim 2, wherein:

the extending portion that extends so as to cover one surface of the coil facing the second pole portion is at some levels in the height of the third pole piece.

10           6.        The thin film magnetic head of claim 3, wherein:

the trimmed portion has a trimming depth that reaches the extending portion of the third pole piece.

7.        The thin film magnetic head of claim 3, wherein:

15           the trimmed portion has a trimming bottom surface on the fourth pole piece.

8.        The thin film magnetic head of claim 1, wherein:

the coil comprises a first coil and a second coil;

20           the first and second coils surround in a spiral form the back gap portion, and one of the first and second coils is fitted into the space between coil turns of the other, insulated from the coil turns of the other by an insulating film, and the first and second coils are connected to each other so as to generate magnetic flux in the same direction.

9. A method for manufacturing a thin film magnetic head with a write element, the write element comprising:

a first yoke portion and a second yoke portion connected to each other by a back gap portion;

a first pole portion and a second pole portion disposed in the medium-facing surface side of the first yoke portion and the second yoke portion respectively;

a gap film disposed between the first pole portion and the second pole portion; and

a coil surrounding in a spiral form the back gap portion; and

the manufacturing method comprising the steps of:

forming the coil above the first yoke portion;

forming a part which the first pole portion is composed of so that said part extends to cover the upper surface of the coil;

forming the gap film on the first pole portion;

forming the second yoke portion, which includes the second pole portion, above the gap film; and

trimming the first pole portion so as to have a width fitting the second pole portion.

10. The manufacturing method of claim 9, wherein:

the step of trimming the first pole portion has a trimming depth that reaches the extending portion of the material, which extends so as to cover

the upper surface of the coil.

11. The manufacturing method of claim 9, wherein forming the first pole portion comprises the steps of:

5 forming a first pole piece at an end of a first magnetic film supporting the coil;

forming a second pole piece on the medium-facing surface side of the coil after forming the coil; and

10 forming a third pole piece that extends so as to cover the upper surface of the second pole piece and the upper surface of the coil.

12. The manufacturing method of claim 9, wherein:

forming the first pole portion further comprises:

15 the step of forming a fourth pole piece on the upper surface of the third pole piece; and

forming the fourth pole piece comprises:

the first step of forming the fourth pole piece in a prescribed major length, and;

20 the second step of forming a short portion of the fourth pole piece, which has a length less than the major length and determines a throat height.

13. The manufacturing method of claim 9, wherein:

forming the first pole portion further comprises the step of forming

a fourth pole piece on the upper surface of the third pole piece; and

the fourth pole piece is formed in a prescribed major length throughout its thickness and the major length is less than the length of the third pole piece, so that the fourth pole piece determines a throat height.

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14. The manufacturing method of claim 9, wherein forming the third pole piece comprises:

the first step of forming the third pole piece in a prescribed major length, and;

10 the second step of forming a short portion of the third pole piece, which has a length less than the major length and determines a throat height.

15 15. The manufacturing method of claim 9, further comprising the step of:

forming an insulating film between the upper surface of the coil and the extending portion of the third pole piece that extends so as to cover the upper surface of the coil, after forming the second pole piece and before forming the third pole piece.

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16. A magnetic recording/reproducing apparatus comprising a thin film magnetic head and a magnetic recording medium, wherein:

the thin film magnetic head is defined in any of claims 1 to 8; and

the magnetic recording medium performs magnetic

recording/reproducing operations in cooperation with the thin film magnetic head.